

and Crosby Hall. Many of these roofs adorn the Churches of Suffolk, as for instance St. Mary's, Bury (now in progress of restoration), St. Margaret's, St. Mary Key, and St. Mary Stoke, Ipswich; Hadleigh, Framlingham, Stonham, Ipswich, Rattlesden, Tostock, Rougham, Tuddenham near Ipswich, Wetherden, &c. Several of these roofs now mentioned have also been repaired by Mr. Ringham, to the great benefit of the structures, and to the satisfaction of those who reverence antiquity.—*Gentleman's Magazine*.

RAILWAY INTELLIGENCE.

House of Commons, Monday, March 4.—Second Report of Select Committee (1st March) considered; Resolution of Committee read, as follows:—

1. That in each case where bills are now pending to authorize the construction of new lines of railway, competing with one another, such bills be respectively referred to one committee.
2. That the committees for the consideration of such bills be specially constituted.
3. That bills now pending to authorize the construction of new lines of railway, which will compete with existing railways, be in like manner referred to committees specially constituted.
4. That such committees be composed of five members, to be nominated by the committee of selection, who shall sign a declaration that their constituents have no local interest, and that they themselves have no personal interest in the bill or bills referred to them, and that they will not vote on any question which may arise without having duly read and attended to the evidence relating thereto; and that three shall be a quorum.
5. That a select committee be appointed, to consider each of the pending railway bills shall be deemed competing bills, according to the foregoing resolutions.
6. That such select committee be composed of five members, of whom three shall be a quorum, and that the committee have power to send for persons, papers, and records.
7. That such of the standing orders as relate to the composition of the committees on private bills, and the orders consequent thereon, be suspended, so far as regards competing railway bills pending in the course of the present session.

First resolution read a second time: motion made, and question proposed.—“That this house do agree with the committee in the said resolution.”—Debate arising; motion made, and question put, “That the debate be now adjourned.” The House divided—Ayes, 3; Noes 200.

Gravesend, Tilbury, and Eastern Counties Junction Railway Company.—This company has for its object, the most ready communication between London and Gravesend, which is proposed to be effected by a line from Ilford to Tilbury. Fort—the company availing themselves of the Act of Parliament already obtained for the Thames Haven line, and making a branch line from Ockendon to the Thames, crossing by way of steam ferry. The time, however, to accomplish this would not exceed one hour, or, as the table states, giving the widest limit, one hour and a quarter, while that required by taking the Surrey and Kent lines would require two hours, and thus a saving of three-eighths in time would be effected. There can be no question but that the traffic between Chatham, Gravesend, and London is very large, and, with the facilities afforded by railway communication, this may be expected to be increased to a vast extent. It is stated, that the whole of the works are ready to be constructed for within the subscribed capital, and that the line will be completed in eighteen months. One-fourth of the shares have been taken up, and interest at the rate of 5 per cent. per annum will be allowed on deposits, or payments on shares. The prospectus states, that a dividend of 10 per cent. may be calculated upon.

Projected Railroad from Paris to Boulogne and Calais.—The following are the chief conditions of the railroad Bill presented to the Chamber of Deputies by M. Darnon, the Minister for Public Works, for constructing a railroad from Paris to the Belgian frontier,

with branches to Calais, Boulogne, and Dunkirk. The branches to Calais and Dunkirk are to commence between Douai and Lille, and to proceed to Calais through Hazebrouck and St. Omer, and to Dunkirk through Hazebrouck and to the west of Cassel. The line to Boulogne is to commence at Amiens, and to proceed through Abbeville and Etaples. A sum of 15,000,000*fr.* is allocated for the construction of the branches to Calais and Dunkirk, and the terms of the lease to a public company, should any offer, is to be 23 years from the date of the fixing of the rails. An additional article stipulates that after the receipt of six per cent. for interest, and two per cent. for a sinking fund, the surplus of revenue shall be equally divided between the company and the government. In case that within two months from the passing of the bill no company shall have complied with the conditions proposed, the minister is authorized to complete the road at the expense of the government. Credits for that purpose are provided in the bill. There is to be a diminution of 3*fr.* in the tariff of merchandise. There are to be three classes of carriages—the first at 10*fr.*, the second at 7*fr.* 0-005, the third at 5*fr.* 0-005. The third class is to be covered and closed with curtains. The government is to become the proprietor of the railroad at the conclusion of the lease. The government is likewise to be at liberty to purchase the railroad from the company contracting at the conclusion of the 12 years from the granting of the lease. The terms of purchase are to be the same as those prescribed in the Orleans Railroad Bill, with this difference, that the premiums to be added to the dividend, of which the annuity to be paid to the company is to be composed, is to be reduced one-half.

Correspondence.

METHOD OF CUTTING A TAPERED PLANK.

SIR,—Your correspondent “R. A. P.” in No. 54, desires to be informed where he may cut a tapered plank, the length of which is l , and the breadth of the two ends B and C parallel to the ends, so that the two parts shall be equal in area. As many cases may occur where such a division of a similar superficies is required, and in other branches of building as well as joinery, you will perhaps insert this reply in your next. It may appear strange to many that a question seemingly so simple cannot be solved but by an algebraic equation of two unknown quantities: but such I believe is the fact.

I have, however, subjoined another method, that is sufficiently correct for practical purposes, and more readily applied. But first for the equation: let the plank be represented by the annexed trapezoid or tapering superficies,



l is the length, B the width of the broad end, C of the narrow end; let y represent the length of the cross-cut, and x its distance from the broad end. Let it first be granted (I need not prove it) that $\frac{B+C}{2} \times l = \text{area of the whole plank}$, we have then given for the

$$1^{\text{st}} \text{ equation } \frac{B+y}{2} \times x = \frac{B+C}{2} \times (l-y).$$

$$2^{\text{nd}} \text{ equation } \frac{B+y}{2} \times x = \frac{B+C}{2} \times l \text{ by the question, to find the value of } x \text{ and } y.$$

To proceed with the first equation. Taking away the denominators on both sides, that is to say, multiplying both sides by 2, and then multiplying the two terms on each side together, we have

$$B+x = ly + Cl - xy - Cx, \text{ and } B+2xy+Cx = ly + Cl \text{ by transposition.}$$

$$\text{And by dividing both sides by } B+2y+C, \text{ we have } x = \frac{ly + Cl}{B+2y+C}.$$

For the second equation, after multiplying

the terms on each side together, and then multiplying both sides by 4, we have

$$2B + 2y = B + C$$

And by dividing both sides by $2B+2y$, we have

$$x = \frac{B+C}{2B+2y}$$

Thus arises a new equation, viz.—

$$\frac{ly + Cl}{B+2y+C} = \frac{B+C}{2B+2y}$$

to find the value of y .

By multiplying both sides by the denominators successively, we bring both sides to whole terms; and after expanding those quantities that are common to both sides, and have like signs, we have $2ly + Cl = B^2 + 2By + 2yC$, and therefore $y = \sqrt{\frac{(B^2 + Cl)}{2l}}$.

We have thus $\sqrt{\frac{(B^2 + Cl)}{2l}}$ = width of

the plank at the cross-cut, and $2B+2y$ = the distance of the cross-cut from the broad end.

To apply this, let l be 74, or 100 inches, B 12 inches, C 8 inches, and we have

$$\sqrt{\frac{(144 \times 100) + (64 \times 100)}{200}} = \sqrt{104} =$$

$$10.198039 \text{ inches, the width of the cross-cut.}$$

$$\text{And } \frac{(12 \times 100) + (8 \times 100)}{41.396078} =$$

$$45.0490243 \text{ inches distance from the broad end.}$$

To prove this

$$(10.198039) \times 2 \times 100 = 1000 \text{ in. cont. of whole plank.}$$

$$(12 + 10.198039) \times 2 \times 45.0490243 = 499.999999$$

= 500 inches, the area of one of the parts.

For the other method alluded to above, let $a b d c$ in the annexed diagram be the given



plank; draw the lines $c f$ and $d i$ at right angles with the ends; draw the line $g k$ parallel to the ends, and midway between them; draw $g e$ and $h l$ parallel to $a f$ and $c i$; then it is easily proved that the triangle $a e g$ is equal to the triangle $g h c$, and consequently the area of the plank on the left of $g k$ exceeds that on the right, by the two oblongs $e f g k$, $i l k m$, so that by adding one of them (which is half the length of the plank, by half the difference in the width of the ends) to $g k d e$, it is rendered equal to the other. Let the plank be of the dimensions supposed before, then the area of the oblong is 50 inches; to add this to $g k d e$, consider what number multiplied by $g k$ will produce 50; now, $g k$ being 10, will require 5; move the rule, therefore, 24 inches nearer to the broad end, for the average width, and then find a number which, multiplied by this increased width, will produce 50, and at that distance from $g k$, towards $a b$, make the cross-cut, which will divide the plank into equal parts, very nearly. The exactness may be increased to any degree by moving the rule for the more correct average width indicated by the last number found, and then finding a new multiplier, and so on.

I remain, Sir, yours most respectfully,
S. HEDGECOCK.

Liverpool, February 29, 1844.

THE ANCIENT ROMAN WALL OF LONDON.

While making excavations for a sewer in Duke-street, Houndsditch, a few days ago, the workmen discovered the foundation of the ancient Roman wall, which it was known near this spot took its course from the Minories to the street denominated “London-wall.” It was found at about 8 feet from the surface, and ran between four and five feet in width. Many of the houses in Beris-mare (which adjoining Duke-street) are built upon this wall. It was observed that outside the wall, slating upon Houndsditch, there was a depth of made earth of about 14 or 15 feet, showing that the spot had been filled up at some early period, while within the wall the native earth was at a depth of between two and three feet, below which is a bed of sand. At the depth where it is necessary to build the sewer, water is abundant, and the men are now employed in pumping it up.